

Claims

We claim:

1. A database system, including  
an exemplar object within the database configured to accept and store a plurality of  
exemplar cases;  
a target object within the database configured to accept and store a target case; and  
a comparison object within the database for comparing the target case with the plurality  
of exemplar cases.
2. The database system of claim 1 where  
the exemplar object includes an attribute of a schema; and  
the comparison object includes a method of the schema.
3. The database system of claim 2 where  
the schema includes a user defined type.
4. The database system of claim 3 where  
the user defined type is implemented using an object relational database.
5. The database system of claim 1 where  
the target object includes an attribute of a schema.
6. The database system of claim 5 where  
the schema includes a user defined type.
7. The database system of claim 6 where  
the user defined type is implemented using an object relational database.
8. The database system of claim 1 where  
the exemplar object includes a database table; and  
the target object includes a database table.
9. The database system of claim 1 where  
the comparison object includes a macro.

10. The database system of claim 1 further including  
a means of grouping exemplar cases into domains, where the exemplar case may be a  
member of more than one domain.
11. The database system of claim 10 further including  
5 a user interface allowing the pruning of domains to exclude from comparison with the  
target case.
12. The database system of claim 1 where  
the target case includes a target feature; and  
the exemplar case includes an exemplar feature.
- 10 13. The database system of claim 12 further including  
a user interface allowing population of the target feature.
14. The database system of claim 12 further including  
a user interface allowing population of the exemplar feature.
- 15 15. The database system of claim 12 where  
the comparison object includes a user defined function.
16. The database system of claim 15 where  
the user defined function calculates a similarity metric representing the similarity  
between the target feature and the exemplar feature.
17. The database system of claim 16 where  
20 the user defined function performs mathematical operations to determine the similarity  
metric.
18. The database system of claim 16 where  
the user defined function, in calculating the similarity metric, determines the relationships  
between nodes representing the target feature and the exemplar feature in a  
25 hierarchical structure.

19. The database system of claim 16 where

the target case includes a plurality of target features and each exemplar case includes a corresponding plurality of exemplar features; and

the user defined function compares the target case with each of the exemplar cases, and determines an overall match factor for each comparison.

20. The database system of claim 19 where

the user defined function determines the overall match factor by computing similarity metrics by comparing each target feature in the target case with the corresponding exemplar feature in an exemplar case; and summing the similarity metrics.

21. The database system of claim 19 where

the user defined function determines the similarity metrics by comparing each target feature in the target case with the corresponding exemplar feature in the exemplar case;

the user defined function creates a weighted similarity metric by multiplying the similarity metrics by a weight associated with that similarity metric;

the user defined function determines the overall match factor by summing the weighted similarity metrics.

22. The database system of claim 15 where

the user defined function indirectly recognizes the similarity between the target and exemplar case.

23. The database system of claim 15 where

the user defined function is aware of features which are indicative of a finding; and

the user defined function will recognize that the target case possesses the feature indicative of the finding exemplified by the exemplar case, even when the exemplar case lacks that feature.

24. The database system of claim 15 where

the user defined function is aware of features, the lack of which are indicative of a finding; and

the user defined function will recognize that the target case lacks a feature, the lack of which is indicative of the finding exemplified by the exemplar case, even when the exemplar case possesses that feature.

25. A method for implementing a case-based reasoning system including

comparing a target case with a plurality of exemplar cases within a database to produce similarity metrics; and

determining the similarity between the target and exemplar cases based on the similarity metrics.

26. The method of claim 25 where comparing includes not spawning a process external to the database.

27. The method of claim 25 where comparing includes not running an external program.

28. The method of claim 25 where comparing includes using a user defined function of the database.

29. The method of claim 25 where comparing includes determining which of the exemplar cases best matches the target case.

30. A method for implementing a database function, where the method includes

accepting a target case for comparison; and

comparing, within the database, the target case with a plurality of the exemplar cases stored in the database.

31. A method for implementing a case-based reasoning system including
- accepting information representing a target case;
  - accepting weights to apply to a set of respective similarity metrics;
  - accepting the number of closest matching exemplar cases the user wants to review;
  - 5     formulating and executing, within the database, a comparison between the target case and  
          the exemplar cases yielding the similarity metrics for that exemplar case;
  - deriving an overall match factor for each of the exemplar cases from the similarity  
          metrics, weighed by their weights; and
  - reporting one or more of the closest matching exemplar cases.
- 10   32. A database system for accessing a database, the database system including
- a massively parallel processing system including
  - one or more nodes;
  - a plurality of CPUs, each of the one or more nodes providing access to one or more  
          CPUs;
  - 15     a plurality of virtual processes each of the one or more CPUs providing access to one or  
          more processes;
  - each process configured to manage data stored in one of a plurality of data-storage  
          facilities;
  - a case-based reasoning system including
  - 20     an exemplar object within the database configured to accept and store a plurality of  
          exemplar cases such that they are distributed evenly among the data storage  
          facilities;
  - a target object within the database configured to accept and store a target case; and
  - a comparison object within the database for comparing the target case with the plurality  
25     of exemplar cases.